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10/596,966	06/30/2006	Hideo Sato	09792909-6649	3198
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/596,966

Applicant(s)

SATO, HIDEO

Examiner

QUANG PHAM

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/US)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Applicant's Arguments/Remarks

1. Applicant's arguments, see Remarks, filed on 11/18/2009, with respect to the rejection(s) of claims 1-6, and 8 under 35 USC 102(b) (over **Kono** et al.), claim 9 under 35 USC 102(e) (over **Endoh** et al.), claim 7 under 35 USC 103(a) (over **Kono** in view of **Dietz** and further in view of **Endoh** et al.), claim 10 under 35 USC 103(a) (over **Endoh** et al. in view of **Wakabayashi**), and claim 11 under 35 USC 103(a) (over **Endoh** et al. in view of **Lemelson**), and claim 12 under 35 USC 103(a) (over **Endoh** et al. in view of **Dietz**), have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of following references/combinations.
2. Claim 8 is canceled.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-2 and 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yap et al. (Yap – US 6,111,506) in view of Kono et al. (Kono – US 6,813,010 B2).**

(1). As to **claim 1**, **Yap** discloses method of making an improved security identification document including contactless communication insert unit. Further, **Yap** discloses *an information processing system comprising:*

a first information processing apparatus (FIG. 7 the improved security document 10) and a second information processing apparatus (FIG. 7 the improved security identification document interface unit 62), said first information processing apparatus comprising:

a storage (column 4 line 64 – column 5 line 6, column 12 lines 39-42 and FIG. 1; the microprocessor 14 function that would access memory/storage) means which stores a first biological identification data associated with a predetermined portion of a living body (column 4 lines 38-53 and column 6 lines 45-51), and

a first communication means for performing communication when held proximate to a predetermined position of a living body (column 15 lines 6-13, column 15 lines 31-37, column 5 line 64 – column 6 line 16), and

the second information processing apparatus (FIG. 7 the improved security identification document interface unit 62) comprising:

a biological sensor (FIG. 7 the biometric data input device 72) which detects biological information from the living body (column 15 lines 38-52 and FIG. 7);

a second communication means which communicates with the first communication means (column 15 lines 20-37);

a biological authentication means which performs biological authentication (column 15 lines 56-65 and column 16 lines 6-11), based on the second biological identification data (column 15 lines 38-52 and FIG. 7) and on the first biological identification data (column 4 lines 38-53 and column 6 lines 45-51), said first biological identification data being obtained from the first information processing apparatus via the first and second communication means (column 5 line 64 – column 6 line 16, column 15 lines 6-11, and column 15 lines 20-37).

Except for the claimed limitation of the second information processing apparatus comprising: *an extraction means which extracts a second biological identification data from the biological information detected by the biological sensor.*

In the art of performing personal identification, **Kono** discloses a personal identification system wherein the system comprises a camera having a light source used to capture the person blood vessel pattern, and the captured image is processed to identify the captured data (column 2 line 68 – column 3 lines 21 and FIG. 11 steps 1004-1103).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the claimed invention to include the extraction used to extract biological identification data from the biological information detected by the biological sensor, as taught by **Kono**, in the personal identification system of **Yap**, for the purpose of identifying the captured biological data before performing the biological authentication process.

(2). As to **claim 2**, **Yap** discloses method of making an improved security identification document including contactless communication insert unit. Further, **Yap** discloses *an information processing apparatus comprising:*

a biological sensor (FIG. 7 the biometric data input device 72) which detects biological information from a living body (column 15 lines 38-52 and FIG. 7).

a near-distance communication means which communicates with a communication target (column 5 line 64 – column 6 line 16, column 15 lines 6-11, and FIG. 7 the improved security document 10 as communication target);

a biological authentication means which performs comparison (column 15 lines 56-65 and column 16 lines 6-11), based on the biological identification data (column 15 lines 38-52

and FIG. 7), *a registered biological identification data* (column 4 lines 38-53 and column 6 lines 45-51; the biological data previously stored in the improved security document as the registered biological identification data), *said biological identification data being obtained from the communication target via the near-distance communication means* (column 5 line 64 – column 6 line 16, column 15 lines 6-11, and column 15 lines 20-37).

Except for the claimed limitations of *the biological sensor which detects biological information from a living body when held proximate to a predetermined position of the living body and an extraction means which extracts biological identification data from the biological information detected by the biological sensor*.

In the art of performing personal identification, **Kono** discloses a personal identification system wherein the system comprises a camera having a light source used to capture the person blood vessel pattern when the user fingers exposed to the light source, and the captured image is processed to identify the captured data (column 2 line 67 – column 3 lines 21, lines 36-40, FIG. 3A, FIG. 4, FIG. 7-9, and FIG. 11 steps 1004-1103).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the claimed invention to include the biological sensor used to capture the biological information from the living body when held proximate to a predetermined position of the living body and the extraction used to extract the biological identification data from the biological information detected by the biological sensor, as taught by **Kono**, in the personal identification system of **Yap**, for the purpose of identifying the captured biological data before performing the biological authentication process.

(3). As to **claim 4**, **Yap** and **Kono** disclose the limitations of claim 2. Further, **Yap** discloses the information processing apparatus further comprising *extracted by the extraction means, the biological identification data obtained from the communication target via the near-distance communication means* (column 15 lines 6-37 and FIG. 7) except for the claimed limitations of *the information processing apparatus, further comprising network communication means which communicates with a management server which manages the biological identification data registered in the communication target, establishing a correspondence thereof, wherein the biological authentication means compares mutually one another of the biological data at the predetermined portion, extracted by the extraction means, the biological identification data obtained from the management server via the network communication means.*

In the art of performing personal identification, **Kono** discloses a personal identification system wherein the system comprises *network communication means which communicates with a management server which manages the biological identification data registered in the communication target* (column 5 lines 15-17, lines 22-27 and FIG. 10 steps 1000-1001 and database 100), *establishing a correspondence thereof, wherein the biological authentication means compares mutually one another of the biological data at the predetermined portion* (column 5 lines 27 – 42 and FIG. 10 steps 1002-1010), *extracted by the extraction means, the biological identification data obtained from the management server via the network communication means* (column 2 line 68 – column 3 lines 21 , column 5 lines 14-42, FIG. 10 step 1003, and FIG. 11 steps 1004-1103).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the claimed invention to include *the information processing apparatus, further comprising*

network communication means which communicates with a management server which manages the biological identification data registered in the communication target, establishing a correspondence thereof, wherein the biological authentication means compares mutually one another of the biological data at the predetermined portion, extracted by the extraction means, the biological identification data obtained from the management server via the network communication means, as taught by Kono, in the personal identification system of Yap, for the purpose of developing a personal identification system including the database to manage all the registered users.

(4). As to **claim 5**, **Yap** and **Kono** disclose the limitations of claim 2 except for the claimed limitations of *the information processing apparatus, further comprising network communication means which communicates with a management server via a predetermined network, the management server managing the biological identification data registered in the communication target (Kono: column 5 lines 15-17, lines 22-27 and FIG. 10 steps 1000-1001 and database 100) and compressed data by use of data obtained in a process up to generation of the biological identification data, with a correspondence established between the biological identification data and a compressed data (Kono: column 5 lines 27 – 42 and FIG. 10 steps 1002-1010), wherein:*

the extraction means generates the compressed data by use of data obtained in a process up to extraction of the biological data at the predetermined portion from the biological data detected by the biological sensor; and

the biological authentication means compares the compressed data generated by the extraction means with the compressed data obtained from the management server via the network communication means.

In the same art of performing personal identification, **Kono** discloses a personal identification system wherein the registered biological data is stored in the database during the registration (column 5 lines 15-17, lines 22-27 and FIG. 10 steps 1000-1001 and database 100). During the authentication process, the biological data obtained from the user using the imaging device (column 2 line 68 – column 3 lines 21, column 5 lines 14-42, FIG. 3A, FIG. 4, FIG. 7-9, FIG. 10 step 1003, and FIG. 11 steps 1004-1103) is compared to the registered biological data selected from the data (column 5 lines 17-21, lines 27-42 and FIG. 10 steps 1002-1010).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the claimed invention to include *the information processing apparatus, further comprising network communication means which communicates with a management server via a predetermined network, the management server managing the biological identification data registered in the communication target and compressed data by use of data obtained in a process up to generation of the biological identification data, with a correspondence established between the biological identification data and a compressed data, wherein: the extraction means generates the compressed data by use of data obtained in a process up to extraction of the biological data at the predetermined portion from the biological data detected by the biological sensor; and the biological authentication means compares the compressed data generated by the extraction means with the compressed data obtained from the management server via the network communication means*, as taught by **Kono**, in the individual personal identification

system of **Yap**, for the purpose of performing the biological authentication using the registered biological data stored in the database of the system with the biological obtain from user during the authentication process.

(5). As to **claim 6**, **Yap** and **Kono** disclose the limitations of claim 5. Further, **Yap** discloses the biological authentication wherein *the biological data at the predetermined portion, extracted by the extraction means, with the biological identification data obtained from the communication target via the near- distance communication means* (column 4 lines 38-53, column 5 line 64 – column 6 line 16, lines 45-51, column 15 lines 20-37, lines 38-52 , lines 56-65, column 16 lines 6-11, and FIG. 7) except for the claimed limitations of *the information processing apparatus, wherein the biological authentication means compares the compressed data generated by the extraction means with the compressed data obtained from the management server via the network communication means*.

In the same art of personal authentication, **Kono** discloses *the biological authentication means compares the compressed data generated by the extraction means with the compressed data obtained from the management server via the network communication means* (column 2 line 68 – column 3 lines 21, column 5 lines 14-42, FIG. 3A, FIG. 4, FIG. 7-9, FIG. 10 step 1000-1001, step 1003, database 100, and FIG. 11 steps 1004-1103).

Therefore it would have been obvious to one of the ordinary skill in the art at the time of the claimed invention to include *the information processing apparatus, wherein the biological authentication means compares the compressed data generated by the extraction means with the compressed data obtained from the management server via the network communication means, as well as the biological data at the predetermined portion, extracted by the extraction means,*

with the biological identification data obtained from the communication target via the near-distance communication means, as taught by Kono, in the personal identification system of Yap, for the purpose of performing the double authentication between the card terminal, user, and the registered biological data stored in the management server to improve more security for the system.

5. **Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yap in view of Kono and further in view of Benhammou et al. (Benhammou – US 2004/0059925 A1).**

As to claim 3, Yap and Kono disclose the limitations of claim 2 except for the claimed limitations of the information processing apparatus, further comprising: network communication means which communicates with a management server managing the communication target, via a predetermined network, and relay means which relays mutual authentication between the communication target and the management server via the network communication means and the near-distance communication means, wherein in accordance with a result of the mutual authentication, comparison is performed by the biological authentication means, or in accordance with a comparison result by the biological authentication means, the mutual authentication is relayed by the relay means.

In the art of performing personal identification, **Kono** discloses a personal identification system wherein the system comprises database to manage the user registered information (the user registered finger-vein) (column 5 lines 15-17, lines 22-27 and FIG. 10 steps 1000-1001 and database 100). During the authentication process, by obtaining the user ID from the user input in a non contact device for instance from the information stored on the IC card issued to the user (column 7 line 62 – column 8 line 5), the user registered image is selected from the database and

compared to the captured image obtained from user hand; the biological authentication is performed between the captured image and the registered image selected from the database (column 5 lines 17-21, lines 27-42 and FIG. 10 steps 1002-1010).

In the same art of authentication between the card device and host reader, **Benhammou** discloses a security system wherein the security memory device for smart cards and the host device perform the mutual authentication before allowing the host reader to read/write information to the cards (abstract, [0008] lines 5-16, [0033] lines 13-20, and FIG. 6 steps 50-57).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the claimed invention to include *network communication means which communicates with a management server managing the communication target, via a predetermined network, and relay means which relays mutual authentication between the communication target and the management server via the network communication means and the near-distance communication means, wherein in accordance with a result of the mutual authentication, comparison is performed by the biological authentication means, or in accordance with a comparison result by the biological authentication means, the mutual authentication is relayed by the relay means*, as taught by **Kono** and **Benhammou**, in the personal identification system of **Yap**, for the purpose of developing a personal identification system including the database to manage all the registered users.

6. **Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yap in view of Kono, and further in view of Endoh et al. (Endoh - US 2004/0022421) and Nick Bromer (Bromer - US 6,476,715 B1).**

As to **claim 7, Yap and Kono** disclose the limitations of claim 2 except for the claimed limitations of *the information processing apparatus, wherein the communication target held is provided with a light source, the information processing apparatus further comprising:*

generation means which generates a flicker pattern to control a flickering state of the light source, and

encryption means which encrypts the flicker pattern generated by the generation means, and

the biological authentication means compares the flicker pattern with a luminance pattern of the biological data, which is detected by the biological sensor through the living body brought close to the predetermined position and emitted with light flickered in accordance with the flicker pattern from the light source in the communication target brought close to the predetermined position.

In the same art of performing the biological authentication, **Endoh** discloses a device with built-in LEDs used as the light source to capture the user blood vessel image in the authentication process ([0202] - [0213], [0215]-[0218] and FIG. 1).

In the same art of performing encrypted authentication, **Bromer** discloses land vehicle having its vehicle identification number encoded into the binary format and the flickering encoded identifier is displayed using the brake light of the vehicle (abstract, column 1 line 61 – column 2 line 4, and FIG. 2 the brake lamp 100). In addition, the detector is coupled to a database to record the vehicle identification number and detect the flickering pattern from the vehicle to perform the authentication to determine whether the vehicle is stolen or wanted (abstract, column 2 lines 5-13, lines 20-26, lines 33-44, and FIG. 2 the detector 200).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the claimed invention to include *the information processing apparatus, wherein the communication target held is provided with a light source, the information processing apparatus further comprising: generation means which generates a flicker pattern to control a flickering state of the light source, and encryption means which encrypts the flicker pattern generated by the generation means, and the biological authentication means compares the flicker pattern with a luminance pattern of the biological data, which is detected by the biological sensor through the living body brought close to the predetermined position and emitted with light flickered in accordance with the flicker pattern from the light source in the communication target brought close to the predetermined position*, as taught by **Endoh** and **Bromer**, in the personal identification of **Yap** and **Kono**, for the purpose of generating the biological data as the flickering pattrer using the light source and performing the biological authentication between the communication target and the authentication device.

7. **Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yap in view of Kono.**

(1). As to **claim 9**, **Yap** discloses method of making an improved security identification document including contactless communication insert unit. Further, **Yap** discloses *an information processing apparatus comprising:*

equipment means which is equipped on a predetermined portion of a living body (column 15 lines 6-13 and FIG. 7 the document 10), and has (1) a storage (column 4 line 64 – column 5 line 6, column 12 lines 39-42 and FIG. 1 the microprocessor 14) means which stores a first biological identification data associated with the predetermined portion of the living body

(column 4 lines 38-53 and column 6 lines 45-51); and (2) *a communication means which is held by the equipment means and transmits the first biological identification data to a communication target to which the predetermined portion equipped with the equipment means is brought close* (column 15 lines 6-13, column 15 lines 31-37, column 5 line 64 – column 6 line 16), and *a biological authentication means which performs biological authentication* (column 15 lines 56-65 and column 16 lines 6-11), *based on the first biological identification data* (column 4 lines 38-53 and column 6 lines 45-51) *and on a second biological identification data* column 15 lines 38-52 and FIG. 7).

Except for the claimed limitation of *the second biological identification data being extracted from biological information detected by a biological sensor*.

In the art of performing personal identification, **Kono** discloses a personal identification system wherein the system comprises a camera having a light source used to capture the person blood vessel pattern, and the captured image is processed to identify the captured data (column 2 line 68 – column 3 lines 21 and FIG. 11 steps 1004-1103).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the claimed invention to include the extraction used to extract biological identification data from the biological information detected by the biological sensor, as taught by **Kono**, in the personal identification system of **Yap**, for the purpose of identifying the captured biological data before performing the biological authentication process.

(2). As to **claim 10**, **Yap** and **Kono** disclose limitations of claim 9. Further, **Yap** discloses *an information processing apparatus, further comprising voltage accumulation means which accumulates a voltage induced in response to reception of a signal supplied from the*

communication target (FIG. 1 the improved security identification document 10), wherein the communication means transmits the biological identification data to the communication target, using the voltage accumulated by the voltage accumulation means as an electromotive force (column 13 lines 3-25, column 15 lines 6-13, lines 21-24, and FIG. 1 the improved security identification document 10).

8. **Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yap in view of Kono, and further in view of Endoh and Jerome H. Lemelson (Lemelson - US 4,189,712).**

As to **claim 11**, **Yap** and **Kono** disclose everything as claimed (see claim 9) except for the claimed limitations of *the information processing apparatus, wherein the equipment means is constituted by a circular ring portion, and a light source which is provided on the ring portion and emits imaging light on the identification target at the predetermined portion, and the imaging light is guided to an imaging element provided on the communication target, through the living body brought close to the communication target.*

In the same art of performing personal identification, **Endoh** discloses a cell phone having the light source for emitting light and photographing the user blood vessel by the reflected light of the user palm of the hand ([0202]-[0204] and FIG. 12).

In the same art of performing authentication, **Lemelson** discloses a switch and lock activating system and method. Further, **Lemelson** discloses the finger ring that contains the security code to operate the activating system (column 3 lines 23-40, column 4 lines 33-68, and column 5 lines 29-68).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the claimed invention to modify the personal identification system of **Yap** and **Kono** to include

the information processing apparatus, wherein the equipment means is constituted by a circular ring portion, and a light source which is provided on the ring portion and emits imaging light on the identification target at the predetermined portion, and the imaging light is guided to an imaging element provided on the communication target, through the living body brought close to the communication target, as taught by Endoh and Lemelson, for the purpose of providing variations of the personal identification system.

9. **Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yap in view of Kono and further in view of Bromer.**

As to **claim 12**, **Yap** and **Kono** discloses everything as claimed (see claim 9) except for the claimed limitations of *the information processing apparatus, wherein the imaging light is emitted, flickered in accordance with a flicker pattern supplied from the communication target, the flicker pattern is compared with a luminance pattern of images sequentially generated on the basis of the imaging light.*

In the same art of performing encrypted authentication, **Bromer** discloses land vehicle having its vehicle identification number encoded into the binary format and the flickering encoded identifier is displayed using the brake light of the vehicle (abstract, column 1 line 61 – column 2 line 4, and FIG. 2 the brake lamp 100). In addition, the detector is coupled to a database to record the vehicle identification number and detect the flickering pattern from the vehicle to perform the authentication to determine whether the vehicle is stolen or wanted (abstract, column 2 lines 5-13, lines 20-26, lines 33-44, and FIG. 2 the detector 200).

Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the claimed invention to include *the information processing apparatus, wherein the imaging*

*light is emitted, flickered in accordance with a flicker pattern supplied from the communication target, the flicker pattern is compared with a luminance pattern of images sequentially generated on the basis of the imaging light, as taught by **Bromer**, in the personal identification system of **Yap** and **Kono**, for the purpose of performing the biological authentication using the blood vessel pattern generated by the light source and the luminance pattern detected by the sensor to determine whether the user is authenticated to use the service.*

Citation of Pertinent Art

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. Dietz et al., US 2004/0208632 A1, discloses the communication using bi-directional LEDs.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QUANG PHAM whose telephone number is (571)-270-3668. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BENJAMIN LEE can be reached on (571)-272-2963. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/QUANG PHAM/
Examiner, Art Unit 2612

/BENJAMIN C. LEE/
Supervisory Patent Examiner, Art Unit 2612